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COMPUTER NETWORKS (GATE 2023) - REPORTS

OVERALL ANALYSIS | COMPARISON REPORT | SOLUTION REPORT

ALL(33) | CORRECT(23) | INCORRECT(10) | SKIPPED(0)

Q. 21 Solution Video | Have any Doubt ?

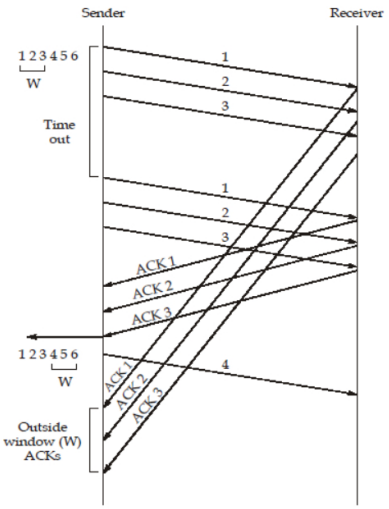
Two sliding window protocols GO-Back-N (GBN) and selective repeat (SR) used for reliable data transfer. Consider the following statements:
S_1: In SR, receiver acknowledges only a correctly received in-order packet.
S_2: In GBN, it is possible to receive an ACK for a packet that falls outside of its current window.
S_3: In SR, it is possible to receive an ACK for a packet that falls outside of its current window.
Which of the following is correct?

A Only S_1 is true

B Only S_3 is true

C Only S_2 and S_3 are true — Your answer is **Correct**

Solution :
(c)
SR allowed out-of-order correct packet delivery.
Consider following situation



This situation possible in SR and GBN both.

D S_1, S_2 and S_3 are false

QUESTION ANALYTICS +

Q. 22 Solution Video | Have any Doubt ?

Consider the following statements:
S_1: Port number 80 is default port number for HTTP.
S_2: HTTP uses TCP as its underlying transport protocol.
S_3: HTTP server maintains information about the clients, so it is stateful protocol.
Which of the following is correct?

A Only S_2 is true

B Only S_1 and S_2 are true — Your answer is **Correct**

Solution :
(b)
HTTP server does not maintains information of clients, so it is stateless protocol.

C Only S_1 and S_3 are true

D All S_1, S_2 and S_3 are true

QUESTION ANALYTICS +

Q. 23 Solution Video Have any Doubt ?

Consider two hosts H_1 and H_2 connected over TCP. Then which of the following situations is/are correct for this TCP connection?

A H_1 sends a segment S to H_2 and it lost. H_1 uses timeout interval (or retransmission timer) to retransmit this segment. Your option is Correct

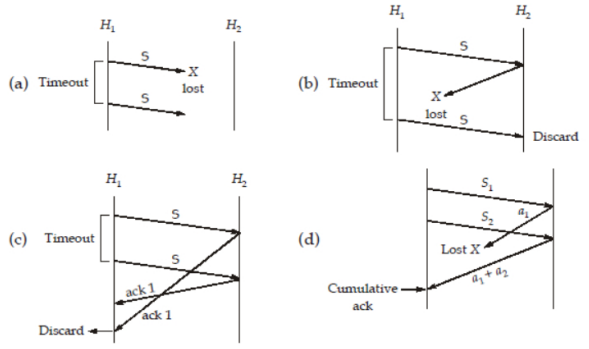
B H_2 receive a segment S sent by H_1, then H_2 send acknowledgement ACK of S to H_1. Let ACK lost, and H_2 got S again. Now, H_2 uses sequence number of segment S to discard this repeated segment. Your option is Correct

C H_1 receive an acknowledgement segment ACK from H_2, which H_1 has already received earlier. Now, H_1 uses acknowledgement number of ACK to discard/ignore this ACK. Your option is Correct

D H_1 and H_2 can use cumulative acknowledgement to avoid some retransmission. Correct Option

YOUR ANSWER - a,b,c | CORRECT ANSWER - a,b,c,d | STATUS -

Solution :
(a, b, c, d)
Above situations show the use of ACK number, sequence number and timeout interval.



QUESTION ANALYTICS +

Q. 24 Solution Video Have any Doubt ?

Consider a company has class B network with id 132.65.0.0. Company wants 6 subnets with same subnet mask. The maximum number of hosts possible in a subnet is _____.

8190 Your answer is Correct8190

Solution :
8190
In class B, 16 bits can use by company.
Let n bits used for subnets, then

$$2^n - 2 = \text{Number of subnets}$$
$$2^n - 2 = 6$$
$$n = 3 \text{ bits}$$

So, 13 bits (h) left for hosts in a subnet

$$\text{Number of hosts} = 2^h - 2$$
$$= 2^{13} - 2 = 8190$$

QUESTION ANALYTICS +

Q. 25 Solution Video Have any Doubt ?

Number of packets readily available in the buffer are 10. 4 bit sequence number is used. The maximum number of outstanding frames are _____.

10 — Correct Option

Solution :
10

Your Answer is 8

QUESTION ANALYTICS +

Q. 26 — Solution Video | Have any Doubt ?

Which of the following are correct?
S_1: Distance vector (DV) routing algorithm uses broadcast (flood) to share the vectors of a node.
S_2: Link-state (LS) routing algorithm requires more number of network (routing) message than DV.
S_3: Poisoned reverse technique completely solve the count-to-infinity problem.
S_4: In LS algorithm, all nodes (routers) have complete information of network.

A. S_1 and S_3 only

B. S_2 and S_4 only — Correct Option

Solution :
(b)
S_1: DV- share vectors only to neighbours.
LS - it uses flooding (broadcast).
S_3: Poisoned reverse may not work for loops of size 3 or more.
S_4: LS - global algorithm, use broadcast.
S_2: LS - global 2 with N nodes, each node have (N – 1) LS packets, (N × (N – 1))
DV - each node have vectors of neighbour only. (2 * edges → vectors)

C. S_1, S_3, S_4 only

D. S_1, S_2, S_3 and S_4 — Your answer is **IN-CORRECT**

QUESTION ANALYTICS +

Q. 27 — Solution Video | Have any Doubt ?

Consider a network with 24 routers and it uses Link-state routing algorithm. Let a node X in this network has 5 neighbour routers. Which of the following is correct?

A. All routers will receive the link-state packet of *X*. — Your answer is **Correct**

Solution :
(a)
LS uses flooding (broadcast) to spread its LS-packet.

B. Only neighbour routers of X will receive the link-state packet of *X*.

C. Only one of the neighbour routers of X will receive the link-state packet of *X*.

D. Router *X* will get the link-state packets of its neighbour routers only.

QUESTION ANALYTICS +

Q. 28 — Solution Video | Have any Doubt ?

Consider a Go-Back_N sliding window protocol that uses a frame size of 2000 bytes to send data on 2 Mbps link with one-way propagation delay of 160 msec. To achieve a link utilization of 50% the minimum window size on sender size is _____.

21 — Your answer is **Correct**21

Solution :
21

$$\text{Transmission time } (T) = \frac{L}{B} = \frac{2000 \times 8 \text{ bits}}{2 \times 10^6 \text{ bps}} = 8 \text{ msec}$$

$$50\% \leq \frac{N}{1+2a}$$

$$N \geq \frac{1}{2}(1+2a)$$

$$= \frac{1}{2}\left(1+\frac{2\times P}{T}\right)=\frac{1}{2}\left(1+\frac{2\times 160}{8}\right)=20.5$$

So, $N = 21$

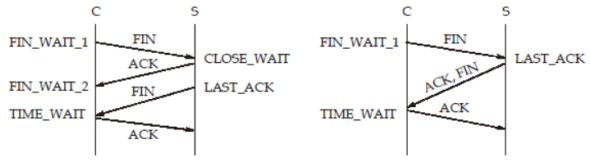
QUESTION ANALYTICS +

Q. 29 Solution Video | Have any Doubt ?

Consider a client C and a server S connected over TCP. After the required data received, C send a packet with flag FIN to S. Now, server has two ways to send the response of this FIN packet, as following:
Way1: S send ACK in response packet
Way2: S send ACK and FIN both in response packet.
C was in FIN_WAIT_1 state just after sending FIN packet. The state of C just after receiving the response from server as Way1 and Way2 respectively are

A FIN_WAIT_2 and TIME_WAIT — Your answer is **Correct**

Solution :
(a)



B FIN_WAIT_2 and CLOSE_WAIT

C TIME_WAIT and LAST_ACK

D CLOSE_WAIT and LAST_ACK

QUESTION ANALYTICS +

Q. 30 Solution Video | Have any Doubt ?

Which of the following is incorrect for Address Resolution Protocol (ARP)?

A ARP resolves IP address only for hosts and router interfaces on the same subnet. — Your answer is **IN-CORRECT**

B ARP query/request is broadcast.

C ARP response is unicast.

D Both, ARP request and reply packet, encapsulated in IP datagram. — Correct Option

Solution :
(d)
ARP request and reply encapsulated in link-layer frame.

QUESTION ANALYTICS +